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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/690,420 | 10/17/2000 | Kazuo Ishikawa | 5000-4810 | 3352 |

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| EXAMINER | |
|---|---|
| VANAMAN, FRANK BENNETT | |
| **ART UNIT** | **PAPER NUMBER** |
| 3618 | |

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SW

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/690,420 | ISHIKAWA ET AL. | |
| | Examiner | Art Unit | |
| | Frank Vanaman | 3618 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-44,48 and 50* is/are pending in the application.

4a) Of the above claim(s) *30-33,35-37,39 and 41-44* is/are withdrawn from consideration.

5)☒ Claim(s) *1-10,12,13,16,17 and 20-26* is/are allowed.

6)☒ Claim(s) *11,14,15,18,19,27-29,34,38,40 and 48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *19* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

**Status of Application**

1. Claims 1-44, 48 and 50 are pending, claims 30-33, 35-37, 39, and 41-44 are withdrawn from consideration.

**Claim Rejections - 35 USC § 103**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The indicated allowability of claims 11, 14, 15, 18, 19, 27, 28 and 29 is withdrawn in view of the newly submitted reference(s) to Vaughters (cited in applicant's information disclosure statement). Rejections based on the newly cited reference(s) follow.

4. Claims 11, 14, 15, 18, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata (cited previously) in view of Vaughters (US 5,353,662, cited by applicant). Iwata teaches a vehicle having an engine (not shown: note, for example, elements 19, 21, 22) and driving wheels, hydraulic brakes (31, 32, 33, 34) for the wheels, brake valves (35a, 35b, 36c, 36d, 37a, 37b, etc.) for adjusting the hydraulic brake pressure, a brake actuator (27), a plurality of wheel speed sensors, a TCS/ABS controller which allows normal braking to occur, and which determines when a wheel deceleration exceeds a deceleration threshold value (col. 8, lines 27-35), and sets the brake valves such that a lower braking force is generated (note figure 9). The reference of Iwata fails to explicitly teach a torque converter and transmission in the vehicle, however both torque converters and transmissions are very well known in the art and known to be provided between engine outputs and driven wheels on motor vehicles, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a torque converter and transmission in order to allow the engine to drive the vehicle wheels. The reference to Iwata fails to teach a shift actuator for controlling transmission direction and a controller for allowing a shift from first to second direction moving, wherein a second direction clutch is used to brake a driving wheel. Vaughters teaches a system for a vehicle having a transmission (16) with forward and reverse clutches (20) operated by valves (18) under the control of a controller (10), wherein when an actuator (12, 14) is operated, the controller can perform a shuttle shift, wherein partial pressure is applied, under command of the controller (10) to both

forward and reverse clutches - causing only partial clutch engagement, the clutch pressure being either modulated or increased in order to control the rate of deceleration (see col. 2, lines 43-66) based on a speed sensor, after which a post shift direction clutch becomes fully engaged to move the vehicle in an opposite (e.g., second) direction, and wherein the post-shift-direction clutch pressure may be either modulated or increased according to the desired acceleration, based on a speed sensor, to achieve a desired acceleration thereafter (col. 2, line 66 through col. 3, line 4. Also note col. 3, line 4 through col. 4, line 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the vehicle of Iwata with a shuttle-shifting controller as taught by Vaughters for the purpose of allowing vehicle direction control to be easily and transparently controlled without special effort on the part of the driver.

5. Claims 19 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata in view of Vaughters and Buschmann (US 5,312,169). The references of Iwata and Vaughters are discussed above and fail to teach the specific use of separate wheel speed sensors for use in the determination of the acceleration/deceleration values. Buschmann teaches a controller for a vehicle drive, wherein wheel speeds for all corresponding vehicle wheels are determined (sensors S1 – S4) and before processing, wheel speed rate of change (i.e., acceleration and deceleration) is additionally determined (calculation element 3) the acceleration being predetermined (in block 3) before control (in block 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to include an acceleration determination as taught by Buschmann, responsive to the speeds and accelerations of all vehicle wheels in the controller of Iwata as modified by Vaughters for the purpose of controlling the magnitude of slip-control or anti-lock control based on the acceleration values, facilitating a faster reacquisition of traction for the vehicle.

6. Claims 34, 38, 40 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimanaka et al. (US 5,150,761) in view of Buschmann (US 5,312, 169). Shimanaka et al. teach a vehicle having an engine (210) and a transmission (211) including a forward clutch (F/C) operated with a forward clutch valve (46), a reverse clutch (R/C) operated with a reverse clutch valve (68), a plurality of driving speed

sensors (212, 212a) associated with a front and rear pair of wheels, one pair of which is driven by the transmission, a skid detector (219), wherein a transmission line pressure is decreased if the traction control determines that skidding occurs and controls an engine output power by decreasing a throttle valve opening (note col. 6, line 58 through col. 7, line 23). The reference of Shimanaka et al. fails to teach the provision of a torque converter connecting the engine and transmission and driving wheel differential, however it is very old and well known to provide a torque converter to allow the engine to drive the transmission, and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a torque converter between the engine output and the transmission input in order to allow the engine to drive the wheels, similarly the use of a differential with the driving wheels of a vehicle, allowing different wheel speeds in cornering for example, is very old and well known, and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a differential to the driving wheels in order to allow the wheels to run at different speed when cornering, for example. The reference of Shimanaka et al. fails to teach the use of a rate of change of wheel velocity in the determination of skidding occurrences, wherein each wheel speed is measured, and while teaching the sensor (e.g., 212a) for determining wheel speed, fails to specifically teach a sensor corresponding to each wheel. Buschmann teaches a controller for anti-lock and slip control (abstract lines 1, 2 – also see column 2, lines 46-68), wherein wheel speeds for all corresponding vehicle wheels are determined (sensors S1 – S4) and before processing, wheel speed rate of change (i.e., acceleration and deceleration) is additionally determined (calculation element 3) the acceleration being predetermined (in block 3) before control (in block 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to include an acceleration determination as taught by Buschmann in the controller of Shimanaka et al. for the purpose of controlling the magnitude of slip-control or anti-lock control based on the acceleration values, facilitating a faster reacquisition of traction for the vehicle.

**Allowable Subject Matter**

7. Claims 1-10, 12, 13, 16, 17, and 20-26 are allowed.

8. Applicant is reminded that claims 30-33, 35-37, 39, and 41-44 remain pending, but are withdrawn from consideration.

**Response to Arguments**

9. Applicant's arguments, filed with the amendment, have been carefully considered. Applicant has argued that Tsuno cannot be applied in that the reference is directed to anti-lock braking control and further amended the claims to positively recite sensors which correspond to particular wheels. Note the reference to Buschmann (cited previously) which teaches that each wheel is provided with its own corresponding sensor (rather than the sensor arrangement set forth in Shimanaka et al.), now applied in view of applicant's amendment. In view of applicant's further comments, note that Buschmann is directed to a sensor scheme which may be equally usable in anti-lock braking and traction control modes (col. 2, lines 46-68).

**Conclusion**

10. As regards claims 11, 14, 15, 18, 19, 27, 28 and 29, applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on Aug. 11, 2003 prompted the new ground(s) of rejection presented in this Office action. As regards claims 34, 38, 40 and 48, the Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 703-308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is 703-308-1113.

As of May 1, 2003, any response to this action should be mailed to:
Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,
Or faxed to one of the following fax servers:
Regular Communications/Amendments: 703-872-9326
After Final Amendments: 703-872-9327
Customer Service Communications: 703-872-9325

**F. VANAMAN**
**Primary Examiner**
**Art Unit 3618**

11/17/03